

CLAIMS

What is claimed is:

1. A method for soft/softer handover in a wireless hybrid time division / code division multiple access communication system, the method comprising for a wireless transmit/receive unit (WTRU):

determining currently used uplink and downlink timeslots of the WTRU in a current cell/sector;

assigning uplink and downlink timeslots to the WTRU for a handover cell/sector, the assigned handover cell/sector uplink and downlink timeslots are different timeslots than the currently used current cell/sector uplink and downlink timeslots; and

after initiating soft handover, communicating same uplink and downlink data with the current cell/sector using the currently used uplink and downlink timeslots and with the handover cell/sector using the assigned handover cell/sector uplink and downlink timeslots.

2. The method of claim 1 for use in a time division duplex system wherein the assigning handover cell/sector uplink and downlink timeslots to the WTRU is only to timeslots having a same direction as timeslots in the current cell/sector.

3. The method of claim 1 wherein the uplink and downlink data is decoded using a joint detector configured to only process signals sent by a same scrambling code.

4. The method of claim 1 further comprising one set of the same uplink data having a highest received signal quality received by each cell/sector being selected as decoded uplink data.

5. The method of claim 1 further comprising combining both sets of the same downlink data as decoded downlink data.

6. A wireless transmit/receive unit (WTRU) capable of performing soft/softer handover in a wireless hybrid time division duplex/code division multiple access communication system, the WTRU comprising:

a transmitter using a current uplink timeslot to transmit uplink data to a first cell/sector;

a receiver using a current downlink timeslot to receive downlink data from the first cell/sector;

a code assignment receiver for receiving a handover uplink and downlink timeslot assignment, the handover uplink and downlink timeslot assignment indicating timeslots other than the current uplink and downlink timeslot; and

the transmitter for transmitting the uplink data to the first cell/sector using the current uplink timeslot and to a handover cell/sector using the assigned handover uplink timeslot; and

the receiver for receiving the downlink data from the first cell/sector using the current downlink timeslot and from the handover cell/sector using the assigned handover downlink timeslot.

7. The WTRU of claim 6 further comprising a joint detector for detecting the received downlink data for the first cell/sector and the handover cell/sector.

8. The WTRU of claim 7 further comprising a buffer for storing the detected received downlink data for the first and handover cell/sector.

9. The WTRU of claim 8 further comprising a combiner for combining the detected received downlink data of the first and handover cell/sector.

10. The WTRU of claim 6 wherein a transmission power level of the first cell/sector transmitted uplink data is based on a received signal power level (RSCP) of

a channel transmitted by the first cell/sector and a transmission power level of the handover cell/sector transmitted uplink data is based on a RSCP of a channel transmitted by the second cell/sector.

11. The WTRU of claim 10 wherein the RSCP of the first and handover cell/sector channels are determined in a same radio frame.

12. The WTRU of claim 10 wherein the RSCP of the first and handover cell/sector channels are not determined in a same radio frame.

13. The WTRU of claim 6 wherein a transmission power level of the first cell/sector uplink communication is based on a pathloss of a channel transmitted by the first cell/sector and a transmission power level of the handover cell/sector is based on an offset of the first cell/sector pathloss.

14. The WTRU of claim 13 where the offset is updated periodically.

15. A wireless transmit/receive unit (WTRU) capable of performing soft/softer handover in a wireless hybrid time division duplex/code division multiple access communication system, the WTRU comprising:

means for using a current uplink timeslot to transmit uplink data to a first cell/sector;

means for using a current downlink timeslot to receive downlink data from the first cell/sector;

means for receiving a handover uplink and downlink timeslot assignment, the handover uplink and downlink timeslot assignment indicating timeslots other than the current uplink and downlink timeslot; and

means for transmitting the uplink data to the first cell/sector using the current uplink timeslot and to a handover cell/sector using the assigned handover uplink timeslot; and

means for receiving the downlink data from the first cell/sector using the current downlink timeslot and from the handover cell/sector using the assigned handover downlink timeslot.

16. The WTRU of claim 15 further comprising a joint detector for detecting the received downlink data for the first cell/sector and the handover cell/sector.

17. The WTRU of claim 16 further comprising a buffer for storing the detected received downlink data for the first and handover cell/sector.

18. The WTRU of claim 17 further comprising a combiner for combining the detected received downlink data of the first and handover cell/sector.

19. The WTRU of claim 15 wherein a transmission power level of the first cell/sector transmitted uplink data is based on a received signal power level (RSCP) of a channel transmitted by the first cell/sector and a transmission power level of the handover cell/sector transmitted uplink data is based on a RSCP of a channel transmitted by the second cell/sector.

20. The WTRU of claim 19 wherein the RSCP of the first and handover cell/sector channels are determined in a same radio frame.

21. The WTRU of claim 19 wherein the RSCP of the first and handover cell/sector channels are not determined in a same radio frame.

22. The WTRU of claim 15 wherein a transmission power level of the first cell/sector uplink communication is based on a pathloss of a channel transmitted by the first cell/sector and a transmission power level of the handover cell/sector is based on an offset of the first cell/sector pathloss.

23. The WTRU of claim 22 where the offset is updated periodically.

24. A method for determining a type of handover in a wireless communication system, the method comprising:

performing measurements on a plurality of cells/sectors;

using the measurements, determining whether soft/softer handover should be performed using a threshold test; and

if the determination is not to perform soft/softer handover, using the measurements, determining whether hard handover should be performed using a threshold test.

25. The method of claim 24 wherein the determining whether soft/softer handover should be performed includes if the measurements exceed a threshold, comparing a cell loading/cell congestion metric to a soft/softer handover gain metric to determine whether soft/softer handover should be performed.